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36. (Amended) A method of electroplating a void-free copper layer onto a surface comprising a field region and a plurality of recessed features, the recessed features having a range of aspect ratios, the surface having a metal seed layer, the method comprising:

immersing said surface into an electroplating solution comprising copper ions, a suppressing additive, and an accelerating additive under conditions wherein an initial dc cathodic current density of from about 0.1 to about 5 milliamperes per square centimeter is applied to said surface to prevent dissolution of the seed layer;

maintaining said initial dc cathodic current density through said surface to create a substantially conformal conductive copper film having a thickness of about 500 Angstroms or less on said surface;

increasing said current density from said initial value to a second value wherein suppressing additives are preferentially depleted at the bottoms of recessed features having the highest aspect ratios such that electroplating deposition occurs preferentially on said bottoms, and maintaining the current density at said second value until said recessed features are filled to the extent that the aspect ratios of all of said recessed features are less than approximately 0.5; and

further increasing said current density to a third value providing a condition of rapid conformal plating, completely filling said recessed features and depositing a copper layer on said filled recessed features and said field region.

37. (Amended) The method of Claim 36 wherein said second value of current density is from about 4 to about 45 milliamperes per centimeter squared and said third value of current density is from about 15 to about 75 milliamperes per centimeter squared.

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39. (Amended) The method of Claim 36 wherein the range of aspect ratios is from about 0.02 to about 5.5.